

REMARKS

35 USC §103

Claims 1-6 are rejected under 35 USC §103(a) as being unpatentable over Hoogendonk (US 3083406) in view of Holland et al (1995), Hanke et al (US 5466281) and Otsuka et al (US 3529326). The Applicant respectfully disagrees, especially in view of the amendments presented herein.

Claim 1 recites:

“A method to prill a shear-thinnable mixture comprising the steps of:

- a) providing a molten first component;
- b) mixing at least a second component with said molten first component;
- c) reacting said components at a temperature and for a time sufficient to form a shear-thinnable mixture having a viscosity, whereby the viscosity decreases with increased shear rate;
- d) mechanically agitating said shear-thinnable mixture by an agitator in a prill head, wherein essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture; and permitting said shear-thinned mixture to flow through holes in said prill head under the influence of a force selected from the group consisting of static pressure and centrifugal force.

It is clear from this provision that those shear-thinnable mixtures having a viscosity, whereby the viscosity decreases with increased shear rate are those shear-thinnable mixtures contemplated herein. In other words, thixotropic fluids whose viscosity decreases with time at constant shear rate are not those fluids contemplated herein. In addition, step d recites that essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture. This provision, as will be shown, is an important part of the subject matter of the present application and can be

easily distinguished from the cited art.

The Examiner should first consider removing Otsuka et al. as a 35 USC §103(a) reference in this case. The Otsuka reference is filled with references to how difficult it is to take the molten materials described in Otsuka and process them by conventional prilling methods, including those that utilize agitators. (see Columns 5-6) Therefore, in order to combat the problems seen when incorporating the molten materials of Otsuka, Otsuka engineers using a series of mesh screens to break up and disperse the molten materials. After a fair reading of Otsuka, one of ordinary skill of the art would understand how to make molten materials containing nitrogen and potassium or phosphorus - but there is absolutely no suggestion or teaching that these molten compounds can be utilized by any conventional or modified prilling methods other than those described in the Otsuka reference, especially after reading Columns 5 and 6 of the reference. Therefore, combining this reference with another reference or references that describe prilling methods unlike those in Otsuka would be considered improper combination based on hindsight. The Applicant respectfully requests that the Examiner review the Otsuka reference paying close attention to Columns 5 and 6 and withdraw this reference as a relevant reference in this matter.

The Hoogendonk reference does not teach, suggest or motivate one of ordinary skill in the art to mechanically agitate a shear-thinnable mixture by an agitator in a prill head, **wherein essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture**. Hoogendonk uses rollers to roll along the walls of the reservoir in order to keep the holes from clogging and to keep buildup from forming on the walls (see Column 1, lines 59-66), but there is no teaching or suggestion to one of ordinary skill in the art that there is any benefit to using rollers to agitate or sweep the entire liquid volume of the reservoir. Hoogendonk also does not suggest to one of ordinary skill in the art that there might be some benefit to sweeping and/or agitating the entire liquid volume in the prill head to shear thin a shear-thinnable mixture.

Neither the Holland reference nor the Hanke reference in combination with any or all of the above-referenced citations do not add anything to those references that would preclude patentability of claim 1 of the present application in view of the provision that **essentially the entire liquid**

volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture.

Based on the arguments presented above, claim 1 is allowable as patentable in view of the references cited herein by the Examiner. In addition, claims 2-6 are allowable as patentable by virtue of their dependency on independent claim 1.

Claims 7-10 are rejected under 35 USC §103(a) as being unpatentable over Hoogendonk (US 3083406) in view of Holland et al (1995), Hanke et al (US 5466281) and Otsuka et al (US 3529326), further in view of Frenken et al (US 3,988,398). The Applicant respectfully disagrees, especially in view of the amendments presented herein.

Claim 1 recites:

“A method to prill a shear-thinnable mixture comprising the steps of:

- a) providing a molten first component;
- b) mixing at least a second component with said molten first component;
- c) reacting said components at a temperature and for a time sufficient to form a shear-thinnable mixture having a viscosity, whereby the viscosity decreases with increased shear rate;
- d) mechanically agitating said shear-thinnable mixture by an agitator in a prill head, wherein essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture; and permitting said shear-thinned mixture to flow through holes in said prill head under the influence of a force selected from the group consisting of static pressure and centrifugal force.

It is clear from this provision that those shear-thinnable mixtures having a viscosity, whereby the viscosity decreases with increased shear rate are those shear-thinnable mixtures contemplated herein. In other words, thixotropic fluids whose viscosity decreases with time at constant shear rate are not those fluids contemplated herein. In addition, step d recites that essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture. This provision, as will be shown, is an important part of the subject matter of the present application and can be easily distinguished from the cited art.

The Examiner should first consider removing Otsuka et al. as a 35 USC §103(a) reference in

this case. The Otsuka reference is filled with references to how difficult it is to take the molten materials described in Otsuka and process them by conventional prilling methods, including those that utilize agitators. (see Columns 5-6) Therefore, in order to combat the problems seen when incorporating the molten materials of Otsuka, Otsuka engineers using a series of mesh screens to break up and disperse the molten materials. After a fair reading of Otsuka, one of ordinary skill of the art would understand how to make molten materials containing nitrogen and potassium or phosphorus - but there is absolutely no suggestion or teaching that these molten compounds can be utilized by any conventional or modified prilling methods other than those described in the Otsuka reference, especially after reading Columns 5 and 6 of the reference. Therefore, combining this reference with another reference or references that describe prilling methods unlike those in Otsuka would be considered improper combination based on hindsight. The Applicant respectfully requests that the Examiner review the Otsuka reference paying close attention to Columns 5 and 6 and withdraw this reference as a relevant reference in this matter.

The Hoogendonk reference does not teach, suggest or motivate one of ordinary skill in the art to mechanically agitate a shear-thinnable mixture by an agitator in a prill head, **wherein essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture**. Hoogendonk uses rollers to roll along the walls of the reservoir in order to keep the holes from clogging and to keep buildup from forming on the walls (see Column 1, lines 59-66), but there is no teaching or suggestion to one of ordinary skill in the art that there is any benefit to using rollers to agitate or sweep the entire liquid volume of the reservoir. Hoogendonk also does not suggest to one of ordinary skill in the art that there might be some benefit to sweeping and/or agitating the entire liquid volume in the prill head to shear thin a shear-thinnable mixture.

The Frenken reference teaches the use of blades instead of rollers in the reservoir to contact the contents of the reservoir. Also, the key to the improper citing of the Frenken reference is shown in Column 2 of the reference, lines 14-23, where it is explicitly stated that the distance from the inner wall of the reservoir to the ends of the blades **is not critical**. Therefore, the Frenken reference, like the Hoogendonk reference, is not placing any importance or critical embodiment on sweeping and/or agitating essentially the entire liquid volume in the reservoir to shear thin a shear-thinnable liquid.

This argument clearly shows that any combination of Hoogendonk and Frenken - taken with or without the Otsuka reference above - does not disclose, teach or suggest the provision that **essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture**. Neither the Holland reference nor the Hanke in combination with any or all of the above-referenced citations does not add anything to those references that would preclude patentability of claim 1 of the present application in view of the provision that **essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture**.

Based on the arguments presented above, claim 1 is allowable as patentable in view of the references cited herein by the Examiner. In addition, claims 7-10 are allowable as patentable by virtue of their dependency on independent claim 1.

Claim 15 is rejected under 35 USC §103(a) as being unpatentable over Hoogendonk (US 3083406) in view of Holland et al (1995), Hanke et al (US 5466281) and Otsuka et al (US 3529326) as applied to claims 1-6 above, further in view of Bassetti et al (US 5378259). The Applicant respectfully disagrees, especially in view of the amendments presented herein.

Claim 1 recites:

“A method to prill a shear-thinnable mixture comprising the steps of:

- a) providing a molten first component;
- b) mixing at least a second component with said molten first component;
- c) reacting said components at a temperature and for a time sufficient to form a shear-thinnable mixture having a viscosity, whereby the viscosity decreases with increased shear rate;
- d) mechanically agitating said shear-thinnable mixture by an agitator in a prill head, wherein essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture; and permitting said shear-thinned mixture to flow through holes in said prill head under the influence of a force selected from the group consisting of static pressure and centrifugal force.

It is clear from this provision that those shear-thinnable mixtures having a viscosity, whereby the viscosity decreases with increased shear rate are those shear-thinnable mixtures contemplated herein. In other words, thixotropic fluids whose viscosity decreases with time at constant shear rate are not those fluids contemplated herein. In addition, step d recites that essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture. This provision, as will be shown, is an important part of the subject matter of the present application and can be easily distinguished from the cited art.

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this case. The Otsuka reference is filled with references to how difficult it is to take the molten materials described in Otsuka and process them by conventional prilling methods, including those that utilize agitators. (see Columns 5-6) Therefore, in order to combat the problems seen when incorporating the molten materials of Otsuka, Otsuka engineers using a series of mesh screens to break up and disperse the molten materials. After a fair reading of Otsuka, one of ordinary skill of the art would understand how to make molten materials containing nitrogen and potassium or phosphorus - but there is absolutely no suggestion or teaching that these molten compounds can be utilized by any conventional or modified prilling methods other than those described in the Otsuka reference, especially after reading Columns 5 and 6 of the reference. Therefore, combining this reference with another reference or references that describe prilling methods unlike those in Otsuka would be considered improper combination based on hindsight. The Applicant respectfully requests that the Examiner review the Otsuka reference paying close attention to Columns 5 and 6 and withdraw this reference as a relevant reference in this matter.

The Hoogendonk reference does not teach, suggest or motivate one of ordinary skill in the art to mechanically agitate a shear-thinnable mixture by an agitator in a prill head, **wherein essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture**. Hoogendonk uses rollers to roll along the walls of the reservoir in order to keep the holes from clogging and to keep buildup from forming on the walls (see Column 1, lines 59-66), but there is no teaching or suggestion to one of ordinary skill in the art that there is any benefit to using rollers to agitate or sweep the entire liquid volume of the reservoir. Hoogendonk also does not suggest to one of ordinary skill in the art that there might be some benefit to sweeping and/or agitating the entire liquid volume in the prill head to shear thin a shear-thinnable mixture.

Neither the Holland reference, the Hanke reference nor the Bassetti reference in combination with any or all of the above-referenced citations or with each other do not add anything to those references that would preclude patentability of claim 1 of the present application in view of the provision that **essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture**.

Honeywell Docket No. 30-4874 (4960)
Bingham Docket No.: 7037172001-3225000

Based on the arguments presented above, claim 1 is allowable as patentable in view of the references cited herein by the Examiner. In addition, claim 15 is allowable as patentable by virtue of its dependency on independent claim 1.

Claims 16-17 are rejected under 35 USC §103(a) as being unpatentable over Hoogendonk (US 3083406) in view of Holland et al (1995), Hanke et al (US 5466281) and Otsuka et al (US 3529326) as applied to claims 1-6, further in view of Stengel (US 3021207). The Applicant respectfully disagrees, especially in view of the amendments presented herein.

Claim 1 recites:

“A method to prill a shear-thinnable mixture comprising the steps of:

- a) providing a molten first component;
- b) mixing at least a second component with said molten first component;
- c) reacting said components at a temperature and for a time sufficient to form a shear-thinnable mixture having a viscosity, whereby the viscosity decreases with increased shear rate;
- d) mechanically agitating said shear-thinnable mixture by an agitator in a prill head, wherein essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture; and permitting said shear-thinned mixture to flow through holes in said prill head under the influence of a force selected from the group consisting of static pressure and centrifugal force.

It is clear from this provision that those shear-thinnable mixtures having a viscosity, whereby the viscosity decreases with increased shear rate are those shear-thinnable mixtures contemplated herein. In other words, thixotropic fluids whose viscosity decreases with time at constant shear rate are not those fluids contemplated herein. In addition, step d recites that essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture. This provision, as will be shown, is an important part of the subject matter of the present application and can be easily distinguished from the cited art.

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this case. The Otsuka reference is filled with references to how difficult it is to take the molten materials described in Otsuka and process them by conventional prilling methods, including those that utilize agitators. (see Columns 5-6) Therefore, in order to combat the problems seen when incorporating the molten materials of Otsuka, Otsuka engineers using a series of mesh screens to break up and disperse the molten materials. After a fair reading of Otsuka, one of ordinary skill of the art would understand how to make molten materials containing nitrogen and potassium or phosphorus - but there is absolutely no suggestion or teaching that these molten compounds can be utilized by any conventional or modified prilling methods other than those described in the Otsuka reference, especially after reading Columns 5 and 6 of the reference. Therefore, combining this reference with another reference or references that describe prilling methods unlike those in Otsuka would be considered improper combination based on hindsight. The Applicant respectfully requests that the Examiner review the Otsuka reference paying close attention to Columns 5 and 6 and withdraw this reference as a relevant reference in this matter.

The Hoogendonk reference does not teach, suggest or motivate one of ordinary skill in the art to mechanically agitate a shear-thinnable mixture by an agitator in a prill head, **wherein essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture**. Hoogendonk uses rollers to roll along the walls of the reservoir in order to keep the holes from clogging and to keep buildup from forming on the walls (see Column 1, lines 59-66), but there is no teaching or suggestion to one of ordinary skill in the art that there is any benefit to using rollers to agitate or sweep the entire liquid volume of the reservoir. Hoogendonk also does not suggest to one of ordinary skill in the art that there might be some benefit to sweeping and/or agitating the entire liquid volume in the prill head to shear thin a shear-thinnable mixture.

Neither the Holland reference, the Hanke reference nor the Stengel reference in combination with any or all of the above-referenced citations or with each other do not add anything to those references that would preclude patentability of claim 1 of the present application in view of the provision that **essentially the entire liquid volume in said prill head is swept by said agitator to shear thin said shear-thinnable mixture**.

Honeywell Docket No. 30-4874 (4960)
Bingham Docket No.: 7037172001-3225000

Based on the arguments presented above, claim 1 is allowable as patentable in view of the references cited herein by the Examiner. In addition, claims 16-17 are allowable as patentable by virtue of their dependency on independent claim 1.

REQUEST FOR A TELECONFERENCE

The Applicant respectfully requests that the Examiner contact the undersigned Attorney-of-Record for a teleconference, if the issues raised in Paper No. 12102004 are not resolved by the amendments and arguments presented herein. The undersigned Attorney-of-Record can be reached by the direct phone, fax and E-mail address shown below.

REQUEST FOR ALLOWANCE

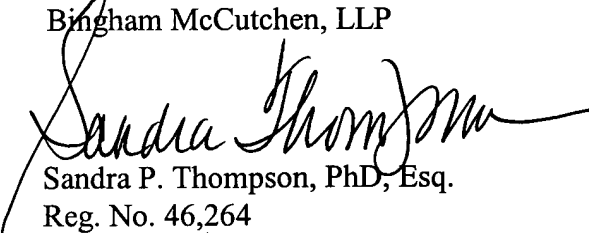
Claims 1-10 and 15-17 are pending in this application, and the Applicant respectfully requests that the Examiner reconsider all of the claims in light of the arguments presented and allow all current and pending claims.

Respectfully submitted,

Bingham McCutchen, LLP

Dated: May 17, 2005

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